



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/337,278	06/22/1999	TAISUKE HIROOKA	990659	8796

23850 7590 10/23/2002

ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW.
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

WINTER, GENTLE E

ART UNIT	PAPER NUMBER
----------	--------------

1746

DATE MAILED: 10/23/2002

21

Please find below and/or attached an Office communication concerning this application or proceeding.



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: ASSISTANT COMMISSIONER FOR PATENTS

Washington, D.C. 20231

Am

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
---------------------------------	-------------	---	---------------------

EXAMINER

ART UNIT	PAPER
----------	-------

21

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 21

Application Number: 09/337,278
Filing Date: June 22, 1999
Appellant(s): HIROOKA ET AL.

Stephen G. Adrian
For Appellant

MAILED
OCT 22 2002
GROUP 1700

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 26, 2002.

Art Unit: 1746

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is deficient because the summary does not comport with the stated summary of the invention. The claims properly summarize the invention, the addition of terms such as "extremely simple means" are contextually meaningless and the claims do not suggest *adjusting* the resistivity of the cleaning water. The resistivity is disclosed as a fixed value. Finally, at least claim 9, is drawn exclusively to a soaking step, in anticipation of a potential future cleaning step. Therefore, only the recitation included in the first two paragraphs is believed to properly summarize the invention.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

Art Unit: 1746

(7) Grouping of Claims

The examiner disagrees with appellant's statement in the brief that certain claims do not stand or fall together. Specifically, claim 10 depends from claims 1 or 9, seemingly if a reference, or an aggregation of references, meets the statutory burden of obviousness with respect to claim 10, it inherently must also meet the statutory requirements for at least one of the broader independent claim(s) from which it depends. Furthermore, in every instance where claim 10 is discussed, it is discussed with respect to its dependency to claim 1. Appellant has seemingly taken an inconsistent position arguing on one hand that claim 10 should be treated as depending from claim 9, (for the purposes of grouping the claims) and then arguing the claim based on its dependence from claim 1. Similarly, the examiner sees no credible argument as to why claim 9, which is independent, should stand or fall on its own.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

Identification #:	Inventor:	Notes:
6,167,583	Miyashita et al.	1/2001
5,873,380	Kanno	2/1999
04-206724	Takehiko et al.	7/1992
5,693,148	Simmons et al.	12/1997
5,336,371	Chung et al.	8/1994

(10) Grounds of Rejection

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita U.S. Patent no. 6,167,583, in view of Kanno, U.S. Patent No. 5,873,380.

Miyashita discloses a cleaning method of an electronic component wherein an object to be cleaned is cleaned by bringing a sponge member into contact with the object to be cleaned (column 1, lines 34-42) while supplying, to the object to be cleaned, water having a resistivity value of about 5 MΩ to 18MΩ (column 1, lines 22-25).

2. Miyashita does not disclose wherein the resistivity of cleaning water is adjusted by including carbon dioxide gas into the cleaning water. However, Kanno discloses wherein the resistivity of cleaning water is adjusted by including carbon dioxide gas into the cleaning water (column 7, lines 11-20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the resistivity of the cleaning water by including carbon dioxide gas because Kanno teaches that damage of a wafer may be reduced by reducing the resistivity of pure water by mixing a carbon dioxide gas with the water, thereby reducing the static charge generated on the surface of the wafer (column 1, lines 38-41).

Art Unit: 1746

As to claim 1, since the prior art of Miyashita teaches a "resistivity of about 5 M Ω to 18 M Ω " (column 1, lines 22-23), such range of "about 5 M Ω to 18 M Ω " allows for lower resistivities, thus the ranges overlap. *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997). Further, a *prima facie* case of obviousness exists where the claimed range and prior art range do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America V. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

3. With respect to claim 5, it would have been obvious to clean ceramic wafers because both Miyashita and Kanno teach cleaning methods of generalized wafers or semiconductor devices, including ceramic or silicon.

4. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al., U.S. Patent no. 6,167,583, in view of Kanno, U.S. Patent No. 5,873,380, further in view of Takehiko et al., JP 04-206724.

Miyashita discloses a cleaning method of an electronic component wherein an object to be cleaned is cleaned by bringing a sponge member into contact with the object to be cleaned (column 1, lines 34-42) while supplying, to the object to be cleaned, water having a resistivity value of about 5 M Ω to 18 M Ω (column 1, lines 22-25).

Miyashita does not disclose wherein the resistivity of cleaning water is adjusted by including carbon dioxide gas into the cleaning water. However, Kanno discloses wherein the

Art Unit: 1746

resistivity of cleaning water is adjusted by including carbon dioxide gas into the cleaning water (column 7, lines 11-20). Further, Takehiko discloses wherein the resistivity of water is 0.1 to 3.0 M Ω by bubbling carbon dioxide into the water (third full paragraph of page 3 and also abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the resistivity of the cleaning water by including carbon dioxide gas of a resistivity value of less than 5 M Ω because Kanno teaches that damage of a wafer may be reduced by reducing the resistivity of pure water by mixing a carbon dioxide gas with the water, thereby reducing the static charge generated on the surface of the wafer (column 1, lines 38-41) and Takehiko teaches that such low resistivity prevents electrification of a wafer during cleaning and prevents foreign matter from attaching to the wafer (first full paragraph of page 3 and abstract).

With respect to claim 5, it would have been obvious to clean ceramic wafers because Miyashita, Kanno, and Takehiko each teach cleaning methods of generalized wafers or semiconductor devices, including ceramic or silicon.

5. Claims 3, 7, and 8 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Miyashita in view of Kanno as applied to claims 1 and 5 above, and further in view of Simmons et al., U.S. Patent No. 5,693,148.

Neither Miyashita nor Kanno disclose wherein the sponge member is separated from the object to be cleaned during cleaning, and cleaning water supplied also to the separated sponge. However, Simmons discloses wherein the sponge member is separated from the object to be

Art Unit: 1746

cleaned during cleaning, and cleaning water supplied also to the separated sponge (column 3 lines 10-19; column 4, lines 3-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the sponge member from the object to be cleaned during cleaning, and supplying cleaning water to the separated sponge because Simmons teaches that cleaning contaminants from the brush/sponge causes contaminants to be repelled from the brush/sponge, thus reducing or even eliminating brush/sponge load-up (column 2, lines 11-18), thus extending the useful lifetime of the brush/sponge (column 3, lines 1-2).

6. Claims 3, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita, in view of Kanno, and Takehiko as applied to claims 1 and 5 above, further in view of Simmons et al U.S. Patent No. 5,693,148.

Neither Miyashita, Kanno, nor Takehiko disclose wherein the sponge member is separated from the object to be cleaned during cleaning, and cleaning water supplied also to the separated sponge. However, Simmons discloses wherein the sponge member is separated from the object to be cleaned during cleaning, and cleaning water supplied also to the separated sponge (column 3, lines 10-19; column 4, lines 3-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the sponge member from the object to be cleaned during cleaning, and supplying cleaning water to the separated sponge because Simmons teaches that cleaning contaminants from the brush/sponge causes contaminants to be repelled from the brush/sponge, thus reducing or even eliminating brush/sponge load-up (column 2, lines 11-18), thus extending the useful lifetime of the brush/sponge (column 3, lines 1-2).

Art Unit: 1746

7. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita, in view of Kanno, and Simmons as applied to claims 1, 3, 5, 7, and 8 above, further in view of Chung et al., U.S. Patent No. 5,336,371.

Neither Miyashita, Kanno, nor Simmons explicitly disclose that the object to be cleaned is soaked in cleaning water having the resistivity value of 10 M Ω or less before cleaning. However, Chung discloses wherein the object to be cleaned is soaked in cleaning water before cleaning (column 2, lines 54-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to soak the object to be cleaned in cleaning water before cleaning because Chung teaches that after a photolithography process and stripping of the photoresist, the photoresist stripper must be removed from the wafer by a process such as rinsing before further wafer processing (column I, lines 23-25; column 3, lines 50-52).

8. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita, in view of Kanno, Simmons, and Takehiko as applied to claims 1, 3, 5, 7, and 8 above, further in view of Chung et al., U.S. Patent No. 5,336,371.

Neither Miyashita, Kanno, Simmons, nor Takehiko disclose wherein the object to be cleaned is soaked in cleaning water having the resistivity value of 10 M Ω or less before cleaning. However, Chung discloses wherein the object to be cleaned is soaked in cleaning water before cleaning (column 2, lines 54-62).

Art Unit: 1746

It would have been obvious to one of ordinary skill in the art at the time the invention was made to soak the object to be cleaned in cleaning water before cleaning because Chung teaches that after a photolithography process and stripping of the photoresist, the photoresist stripper must be removed from the wafer by a process such as rinsing before further wafer processing (column 1, lines 23-25; column 3, lines 50-52).

(11) Response to Argument

CLAIMS 1 AND 5, IN THEIR PRESENT FORM, ARE NOT PATENTABLE UNDER 35 U.S.C. 103(a) BECAUSE EACH AND EVERY ELEMENT OF THE CLAIMS IS IDENTICALLY DISCLOSED IN THE AGGREGATED DISCLOSURES OF *MIYASHITA ET AL.* AND *KANNO*, AND BECAUSE, *KANNO* EXPLICITLY PROVIDES MOTIVATION FOR COMBINING THE REFERENCES.

(1) EACH AND EVERY ELEMENT OF CLAIMS 1 AND 5 IS PRESENT IN THE AGGREGATED REFERENCES

Appellant has asserted that each and every limitation of claim 1 is not in the aggregated references. To support this proposition appellant has argued:

Miyashita et al., fails to teach the feature of claim 1 of bringing a sponge member into contact with the object to be cleaned while supplying, to said object to be cleaned, water containing carbon dioxide gas having a resistivity value of less than 5 MΩ. (emphasis in original)

Art Unit: 1746

Appellant appears to make three general allegations, which will be parsed, and addressed in turn:

First:

Appellant appears to suggest that the sponge member is not brought into contact with the object. The logic of the argument is not immediately apparent. The passage cited in the Office action, (column 1, lines 34-42) seemingly could not be clearer:

“...a cleaning liquid is dropped onto a roll-like brush. The roll-like brush comes into contact with the semiconductor wafer...”. (emphasis added). Further, Appellant has acknowledged that “semiconductor wafer” reads on “electronic component”; and Miyashita et al. explicitly teach, *inter alia* at claim 7: “wherein said roll-like brushes are made of polyurethane foamed like sponge”. Therefore, the sponge, emphatically does, contact the object, and the limitation is explicitly, and identically, disclosed by Miyashita et al. It is also noted that the Declaration of paper 15, unambiguously recites the step of “brushing cleaning” (sic) the wafers, in the second full paragraph of the second page.

Second:

Appellant emphasizes the word “supplying”, presumably suggesting that such an element is not taught. The above passage makes clear that the water reaches the wafer. Appellant appears to want to construe “supplying” as “DIRECTLY supplying”. Reading such an additional limitation into the claim is improper. If appellant wanted to add an additional limitation to the claim, appellant had ample opportunities to do so during prosecution.

Art Unit: 1746

Appellant has not amended the claim to include such a recitation, has not agreed to be bound by such a limitation, and the Office has not read such a limitation into the claim. It goes without saying that, had appellant made such an amendment, Kanno would have been cited for the presence of a direct applicator and the motivation for its use.

Third:

The position taken by the Office is in conformity with that of Appellant on the issue of “water containing carbon dioxide gas”. Kanno is provided for the teaching of the addition of carbon dioxide gas. The Office has not taken the position that the claim is anticipated, but rather, that the claim is *obvious* in view of the aggregated references.

The teaching of “about 5 MΩ” was not addressed specifically by appellant. The position of the Office is that “about 5” reads on “less than 5”; or in the alternative the Office relies on caselaw which stands for the proposition that a *prima facie* case of obviousness exists (with respect to range) where the claimed range and prior art range do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir 1985).

(2) **KANNO** EXPLICITLY PROVIDES THE REQUISITE MOTIVATION FOR COMBINING THE REFERENCES.

Appellant has apparently not attacked the motivation for making the instant combination (see the first paragraph of page 5 of the filed brief). Nonetheless, as asserted in the Office

Art Unit: 1746

action of paper 14, the teaching and motivation for combining are explicitly found in the disclosure of Kanno (column 1, line 38-41), namely: adjusting pH and resistivity with carbon dioxide gas.

(3) DECLARATION

Appellant appears to place great weight on the declaration of paper 15, which was submitted and was fully considered after the application was under final rejection. The declaration is grossly deficient and fails to provide *any* meaningful data because it recites substantive limitations which simply do not exist in the claims.

Such as:

- a. “superpure (deionized water)” the claim makes no references to either super-pure or de-ionized water. Further, the purity of de-ionized water is often described in terms of the water’s resistivity. Wherein a *higher* resistivity is a purer water, the instant claim is drawn to a *lower* resistivity, suggesting a *less pure* water;
- b. “changes in flowrate” this limitation is also not in the instant claim. Intuitively an increase in the flowrate will have an impact on the particle removal rate;
- c. there is no requirement (or even suggestion), in the claims, that the claimed resistivity is predominantly controlled by the addition of gas to the water. The claim, in its present form, only teaches resistivity of greater than 5 MΩ. The resistivity of greater than 5 MΩ could be achieved by the addition of surfactant, particulate, acid, base, hydrogen peroxide etc.; and finally

Art Unit: 1746

- d. The specific substrate indicated in the declaration is not indicated in the independent claim. Thus the declaration, in addition to all the above deficiencies is drawn to a single narrow embodiment. Seemingly, the claim should either identify the specific substrate, or the experimental data should encompass more than a single substrate, or alternatively, some data showing a correlation between the demonstration substrate and other substrates.

Because the declaration has failed to demonstrate that the invention has any meaningfully unexpected properties, the declaration fails to distinguish the instant claim.

As an aside, it is not clear how the “first half of the doctoral course in human environmental science” is meaningful for the purposes of showing the efficacy of a cleaning solution. Further, Takehiko et al. discloses the system and results that are set forth in the declaration.

CLAIMS 1 AND 5 ARE NOT PATENTABLE BECAUSE EACH AND EVERY ELEMENT OF THE CLAIMS IS IDENTICALLY DISCLOSED IN THE AGGREGATED DISCLOSURES OF *MIYASHITA ET AL.* AND *KANNO*, IN VIEW OF *TAKEHIKO ET AL.* AND BECAUSE, *KANNO* AND *TAKEHIKO ET AL.* EXPLICITLY PROVIDE THE REQUISITE MOTIVATION FOR COMBINING THE REFERENCES.

Appellant's arguments appear to mirror those set forth above, with the exception that in argument 2, appellant's attack the examiner's statement of motivation for making the claimed combination. Previously, it was shown that each and every element of the claimed invention

Art Unit: 1746

was present, except that there may have been some ambiguity with respect to the 5 MΩ range. Specifically, appellant appears reject the argument that “less then 5 MΩ” is equivalent to “a range of 5-18 MΩ”. To resolve the possibility of any potential lingering ambiguity Takehiko et al. is provided for the proposition that a resistivity of less than 5 MΩ is common. Takehiko et al. provides a teaching squarely within the referenced MΩ value (0.1-3 MΩ), and the solution is used for cleaning electrical components. Appellants have attempted to suggest that somehow a “final cleaning step” is not a cleaning step and thus the artisan would not have been motivated to make the instant combination. The logic employed is specious. On one hand appellant contends that an improved particle removal rates is obtained by using a carbon dioxide water solution having less than 5 MΩ resistivity. In the next sentence, appellant argues that the artisan, when looking at a reference that teaches that improved particle removal rates are obtained by using a carbon dioxide water solution having less than 5 MΩ resistivity, would not have been motivated to lower the resistivity of the solution. The references state that the water needs to have a certain level of conductivity or the wafer will become charged. The degree of conductivity is taught within the claimed range 0.1 to 3.0 MΩ. Despite the fact that the prior art discloses (a) the water resistivities within the claimed ranges, (b) the adjustment of resistivity using carbon dioxide, (c) the desirable results that follow from changes in resistivity, and (d) all the disclosures are in the context of cleaning wafers, which are the acknowledged electronic device of the instant claims, appellant persists with the untenable position that the artisan would not have been motivated to make the instant combination. There is simply nothing in the instant claim that has not been previously contemplated in the context of electronic component cleaning.

CLAIMS 3 AND 7, IN THEIR PRESENT FORM, ARE NOT PATENTABLE OVER 35 U.S.C. 103(a) BECAUSE EACH AND EVERY ELEMENT OF THE CLAIMS IS IDENTICALLY DISCLOSED IN THE AGGREGATED DISCLOSURES OF *MIYASHITA ET AL.* AND *KANNO*, IN VIEW OF *SIMMONS ET AL.* AND BECAUSE THE SECONDARY REFERENCES EXPLICITLY PROVIDE THE REQUISITE MOTIVATION FOR COMBINING THE REFERENCES.

As a preliminary matter it is noted that appellant, contemporaneous with the filing of the instant Appeal Brief, canceled claim 8.

In the propounded arguments regarding claims 3 and 7 appellant has asserted:

[T]he portions highlighted by the Examiner teach a method for cleaning contaminants from a brush when the pH level of the brush is raised. As such, the teachings of Simmons et al. would not suggest the features of the sponge member being separated from said object to be cleaned during cleaning and said water is supplied also to said separated sponge member.

The basis for the above passage is simply not supported by the record. The cited passages are related to a brush cleaning operation that reduces particulate matter, and the brush (conceded to be equivalent to a sponge *inter alia* in the declaration) is emphatically separated from the wafer (conceded read on the claimed "electronic device"). See e.g. column 3, line 23-24 disclosing, "wafers are again loaded into the brush station" also see elements 3 and 5 of figure 1. It appears to be appellant's contention that the prior art of record contemplates a system that would flush the contaminants from the brush/sponge onto

Art Unit: 1746

the wafer/electronic device. Appellant provides no support for the proposition that the particulate is redeposited onto the wafer, and ignores the plain, and explicit, teachings of the references.

CLAIMS 3 AND 7, IN THEIR PRESENT FORM, ARE NOT PATENTABLE OVER 35 U.S.C. 103(a) BECAUSE EACH AND EVERY ELEMENT OF THE CLAIMS IS IDENTICALLY DISCLOSED IN THE AGGREGATED DISCLOSURES OF *MIYASHITA ET AL.*, *KANNO*, AND *TAKEHIKO ET AL.* IN VIEW OF *SIMMONS ET AL.* AND BECAUSE THE SECONDARY REFERENCES EXPLICITLY PROVIDE THE REQUISITE MOTIVATION FOR COMBINING THE REFERENCES.

Previously, it was shown that each and every element of the claimed invention was present, except that there may have been some ambiguity with respect to the 5 M Ω range. Specifically, appellant appears reject the argument that “less then 5 M Ω ” is equivalent to “a range of 5-18 M Ω ”. To resolve the possibility of any potential lingering ambiguity Takehiko et al. is provided for the proposition that a resistivity of less than 5 M Ω is common. Takehiko et al. provides a teaching squarely within the referenced M Ω value (0.1-3 M Ω), and the solution is used for cleaning electrical components.

Appellants has gone on to assert:

[e]xaminer has failed to raise a prima facie rejection of the claims. In particular, the [e]xaminer has failed to explain why one of ordinary skill in the art would have been motivated by the teachings of the cited art to combine the references in the manner urged by the [e]xaminer

The motivation, explicitly set forth in the Official action of paper 14, and reiterated in the response to arguments in paper 14. In the interests of thoroughness the motivation is again set forth here. Specifically Appellant argues:

There is not suggestion provided by Takehiko et al. to adjust the resistivity of cleaning water, which is supplied to a sponge member.

Takehiko et al. are unambiguous and clear: water having a very high resistivity results in the electrification (charge build-up) on the wafer surface, this charge build-up results in the static attraction of particulate to the wafer surface. By increasing the conductivity of the water, especially through the addition of a non-particulate (i.e. dissolved gas) medium, the wafer electrification can be minimized, and the cleaning process can be enhanced (page 2 of the translation). The artisan, attempting to optimize the cleaning of a wafer, would have been motivated to combine the teaching of Takehiko et al. with those of Miyashita to adjust the resistivity of the cleaning solution. Appellant stresses: "There is no suggestion provided by Takehiko et al. to adjust the resistivity of cleaning water which is supplied to a sponge member." Miyashita et al. discloses that the solution is applied to the sponge, and Takehiko et al. disclose that the cleaning solution i.e. reduced resistivity water, results in a cleaner wafer, because attraction between contaminants and the wafer are minimized. The artisan would have been motivated to select a cleaning solution that would reduce the attraction between contaminants and the wafer. Static charge build-up is as much, or more of, an issue when a sponge, or brush, which is non-conductive, is contacted with the wafer as it is in any other situation. Takehiko et al. was not alleged to teach a sponge, it was alleged to teach a cleaning solution and the reasons for using the solution.

CLAIMS 9 AND 10, IN THEIR PRESENT FORM, ARE NOT PATENTABLE OVER 35 U.S.C. §103(a) BECAUSE EACH AND EVERY ELEMENT OF THE CLAIMS IS IDENTICALLY DISCLOSED IN THE AGGREGATED DISCLOSURES OF *MIYASHITA ET AL.*, *KANNO*, AND *SIMMONS ET AL.* IN VIEW OF *CHUNG ET AL.* AND BECAUSE THE SECONDARY REFERENCES EXPLICITLY PROVIDE THE REQUISITE MOTIVATION FOR COMBINING THE REFERENCES.

Claim 9 requires only: a cleaning method...wherein an object to be cleaned is soaked in cleaning water having the resistivity value of 10 MΩ or less before cleaning. The references, Miyashita et al., Kanno, and Simmons et al., apparently fail to explicitly disclose a soaking step (although “soaking” seemingly would be encompassed by the wetting operation of Miyashita et al.), using water having a resistivity value of 10 MΩ or less before cleaning. Chung, makes the soaking step explicit, the cited passage discloses that the wafer must be rinsed, and defines rinsing in the next sentence as “immerse the wafers in a tank into which water and nitrogen are pumped so that water overflows the tank.” (Column 1, line 23-25). Similarly, the summary of the invention discloses bubbling carbon dioxide into the water in lieu of the nitrogen. The solution would inherently have a resistivity of 10 MΩ or less because the gas would ultimately saturate the solution and cause the resistivity to go down below 10 MΩ. The motivation for making the combination is explicitly taught by Chung et al. at column 1, lines 23-25, namely removing the photoresist stripper.

Art Unit: 1746

CLAIMS 9 AND 10, IN THEIR PRESENT FORM, ARE NOT PATENTABLE OVER 35 U.S.C. §103(a) BECAUSE EACH AND EVERY ELEMENT OF THE CLAIMS IS IDENTICALLY DISCLOSED IN THE AGGREGATED DISCLOSURES OF *MIYASHITA ET AL.*, *KANNO*, *SIMMONS ET AL.*, AND *TAKEHIKO ET AL.* IN VIEW OF *CHUNG ET AL.* AND BECAUSE THE SECONDARY REFERENCES EXPLICITLY PROVIDE THE REQUISITE MOTIVATION FOR COMBINING THE REFERENCES.

The addition of Takehiko et al. provides explicit support and additional motivation for the reducing resistivity, through the addition of carbon dioxide gas. Takehiko et al. provide explicit support for the proposition that the water would inherently have the indicated resistivity.

Appellant's suggestion that "Chung et al. does not provide any suggestion which would have motivated one of ordinary skill in the art to then perform a cleaning operation by means of a sponge member." is simply irrelevant. There is no mention of a "sponge member" in the claim as presently written. Arguing that a claim is patentable based on limitations that are not in the claim does little to promote clarity. Notwithstanding the fact that such a limitation is absent, appellant's arguments are flawed, the soaking step disclosed in Chung et al. would assist in the removal and/or loosening of contaminants, such a step would improve the efficacy or shorten the processing time of the cleaning steps disclosed by Miyashita et al.

(12) Conclusions

Because each and every limitation of each of the currently pending claims is disclosed in the prior art of record, as set forth above, and because the references themselves provide the

Art Unit: 1746

requisite motivation to make the instant combinations, the Board is respectfully requested to affirm the rejections of the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (703) 305-3403.

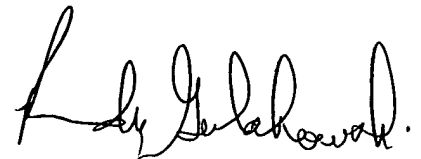
The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gentle E. Winter
Examiner
Art Unit 1746

October 21, 2002



RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700